

NOTES ON INDIAN THYSANOPTERA WITH BRIEF DESCRIPTIONS
OF NEW SPECIES.

BY

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(With 2 plates and a text figure).

This paper is intended to be the first supplement to a Memoir* on Indian Thysanoptera published by the senior author in 1928. As mentioned therein further collections of Indian forms were made since then and portions of the material worked out from time to time. In this short paper eleven new species including a new genus are described ; in addition a few fresh records for India and available notes on already noted species are also added.

The new forms noted are the following:—

Erythrothrips asiaticus.	n. sp.	Fulmekiola indica.	n. sp.
Æolothrips pandyani.	„	Scolothrips asura.	„
Mymarothrips garuda.	„	Oxythrips hemavarna.	„
Dendrothrips dwivarna.	„	Haplothrips tirumalraoi.	„
Heliothrips kadaliphila.	„	Euoplothrips malabarica.	„
Euryaplothrips crassus.			
(new gen. and sp.)			

Erythrothrips asiaticus, n. sp.

Macropterous female.—Length, 1·520 mm. General colour, greyish to dark brown with reddish pigment here and there. The head, mouth-cone, the first two antennal joints, the dorsal aspect of the head and prothorax and all the femora dark grey ; abdomen and pterothorax light grey with reddish pigment on the latter and on the last abdominal segment ; ovipositor yellowish. Antennal joints 3 and 4 light yellow, with the latter greyish towards apex ; 5th to 9th grey to yellowish grey. Eyes dark, ocelli brownish. Wings, transparent with the veins and cross-veins light grey ; there is a longitudinal dark grey band along the posterior border of the fore-wing which is broadest at middle. Fringes found only on the posterior margin of the wings. All tibiae and tarsi lemon-yellow, tibial spines dark-brown.

Head as long as broad and scarcely longer than prothorax, vertex very slightly produced between the closely approximate bases of the antennæ ; cheeks parallel, eyes prominent, and less than half the length of the head, twice as broad as long, spherical and pilose. Mouth-cone rather pointed and reaching the base of mesosternum. Maxillary palpus 5-jointed. Antennæ twice as long as head ; joints 1 and 2 of same length, 3 and 4 of same length and almost of the same breadth throughout, though broader towards the apex than at the base ; joints 5 to 9 together longer than either 3rd or 4th. The latter have large sense areas. There are short hairs on all the joints and a few transparent short bristles on the 9th.

Thorax : prothorax broader than long and not armed ; pterothorax longer and broader than prothorax. Fore femora broad and stout. Wings extend to 9th abdominal segment, fore-wing of same breadth except at base and apex, cross-veins clear, costal margin with no fringes or spines ; about a dozen short conspicuous setæ present along the dark longitudinal band.

Abdomen as long as or slightly longer than head and thorax put together, posterior angles of segments 2 to 8 with a pair of short bristles and the 9th and 10th with a few longer ones.

Measurements :—Head length ·209 mm, breadth ·171 mm ; prothorax, length ·181 mm, breadth ·200 m. ; Antennal joints: I 38u, II 38u, III 86u, IV 81u, V 41u, VI 29u, VII 24u, VIII 10u, IX 5u.

* *Memoirs of the Dept. of Agriculture, India*, Entom. ser., vol. x (7), pp. 217-316, 1928.

Described from two specimens got from grass sweepings at Coimbatore, S. India. (V. M. Coll.)

This is the first species of Erythrotrips discovered in the Old world, the two previously known ones being American, viz., *E. arizonæ*, Moulton and *E. durango*, Watson; the Indian form differs from these two in some distinct features. Some of these differences are the colour of the antennæ and legs, the extent of the dark wing band, and the structure and number of the setæ on the posterior wing-vein.

Eolothrips fulvicollis, Bagnall.

(A. M. N. H. 9, iv, 1919, p. 253.)

Bagnall's very brief description of this species may be supplemented with the following notes taken from specimens of the insect collected on Mango in Pusa Behar, and received from Mr. Fletcher:—

General colour dark to greyish or yellowish brown. Head and abdomen dark to grey brown, prothorax yellowish, pterothorax brown to dark brown and of a lighter hue than head and abdomen. Mouth-cone grey. Antennæ dark brown except apex of 2nd and basal two-thirds of 3rd which are yellowish. Legs grey to dark brown—the forelegs and the femora of the middle and hindlegs more or less suffused with yellow. Wings greyish brown with three distinct transparent cross bands, at base, middle and apex; veins and cross veins very light grey; fringes brownish.

Head slightly broader than long and as long as pronotum. Mouth-cone pointed reaching base of mesosternum. Antennal joints 3 and 4 of same length, joint 5 equal in length to joints 6 to 9 together. 3 and 4 have elongated and the 5th a small roundish sense area towards the apical region of each; that of the 4th very clear over the dark brown ground colour of the joint. The long and cross-veins of fore-wing distinct, costal spines short and sharp; 8 setæ on upper vein beyond the central cross-vein, most of them situated on the preapical fuscous area. Fringes absent on costal margin. Front legs shorter than the other four. Abdomen broadest at middle, apex bluntly pointed, 9th and 10th segments with long dark bristles.

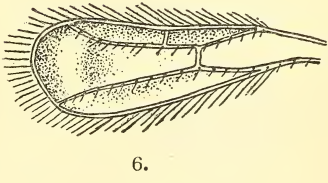
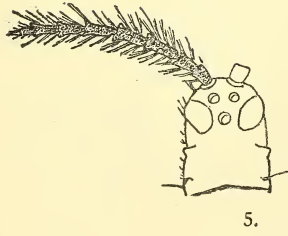
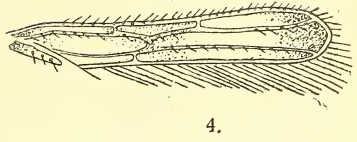
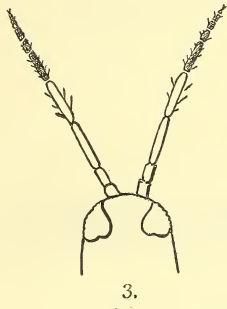
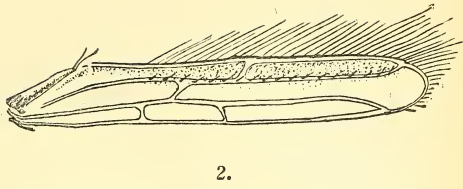
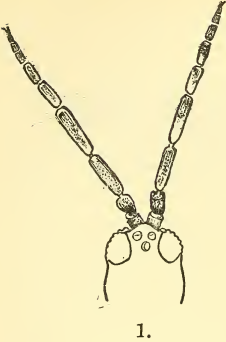
The male which was not noted before by Bagnall was also collected with the above material and the following notes on the male may be added:—

Macropterous male.—Coloured similar to female except that the apical segments of the abdomen are darker, testes reddish. 2nd and 3rd joints of antennæ except the extreme apex of 3rd almost wholly whitish yellow in some, joint 5 a little longer than joints 6 to 9 together; the sense area of the 4th curved at apex. Wings extend to apex of abdomen. Abdomen with the 9th segment stout and broad with a strong hook like clasper and a very stout curved spine on each posterior angle; 10th segment rather small and with a transverse row of long bristles just before apex.

Eolothrips pandyani, n. sp.

Macropterous female.—Length 1.85 mm. General colour yellowish brown, the head and thorax, especially the latter of a deeper brown; abdominal tergites 6 to 8 greyish brown, the rest of the abdomen yellowish brown, more yellowish than the thorax. Ventral side of abdomen and ovipositor yellow. The first four joints of the antennæ uniformly whitish yellow, 5th to 9th inclusive dark grey to black; in some specimens the 3rd and 4th sometimes show a touch of greyish brown. Eyes black, ocelli with reddish pigment cups. Legs yellowish suffused with brown, especially so in the case of the middle and hind-legs, tarsi paler. Wings light grey brown with two distinct broad transparent cross-bands, one a little beyond the base and the other a little beyond the centre, the latter is very clear; hind-wings with uniform very light grey infumation.

Head broader than long, cheeks gently arched and broadening towards base; vertex very slightly projecting forwards between the bases of the antennæ. Eyes large, half as long as head. No conspicuous bristles on head; one or two very short spines on cheek behind eyes and a few slender short ones on the occiput. Mouth-cone broad at base and broadly pointed and reaching middle of prosternum. Antennal joints 1 and 2 stout and cylindrical, 2nd longer than 1st, 3rd which is the longest of all has a distinct basal stalk and has almost the same breadth beyond the stalk, 4th shorter than 3rd, and of same shape but without the stalk. 5th to 9th together slightly longer than the 3rd, 5th is the longest of the distal five and as long as all of them together. 3rd and 4th

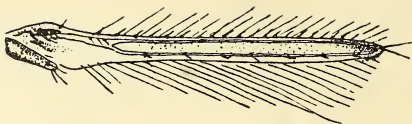


INDIAN THYSANOPTERA

(For explanation see end of article.)



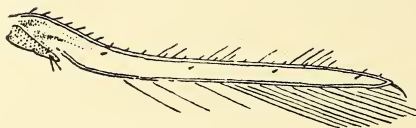
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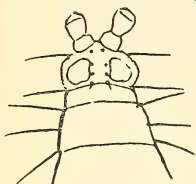
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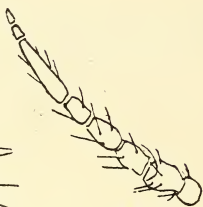
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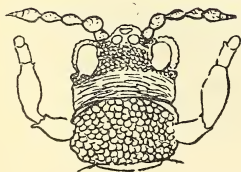
5a.



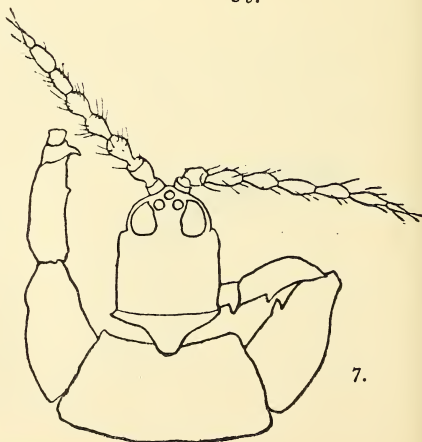
5b.



5c.



6.



7.

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(For explanation see end of article.)

joints have a long very narrow pale membranous area along the inner margin, which is evidently sensory.

Prothorax as long as but broader than head, sides slightly arched outwards with no conspicuous bristles. Pterothorax broader than prothorax at base but narrowing towards abdomen. Front legs rather stouter and shorter with the femora slightly incrassate; all the tibiae with strong apical spurs. Wings extend to 9th abdominal segment, fore-wings long and broadly rounded at apex with the long and cross-veins clear; the upper vein has 10 to 12 and the lower 9 or 10 short setae beyond the central cross-vein; costal margin with about 35 small spines. Wing scale has 3 or 4 setae in a row and 2 or 3 long bristles at apex. Wing fringes only along post half of hind margin.

Abdomen longer than head and thorax together; narrow at base, widest at middle and again narrowing towards anal segment; the latter bluntly pointed. 9th and 10th segments with moderately long bristles. Ovipositor conspicuous and turned upwards.

Measurements: Head, length .200 mm., breadth .222 mm.; Prothorax, length .200 mm., breadth .246 mm. Pterothorax, breadth .333 mm.

Antennal joints—I 50u, II 55u, III 190u, IV 160u, V 120u, VI 50u, VII 35u, VIII 20u, IX 15u.

Macropterous male.—Length 1.555 mm. Almost of the same colour as female, but with the greyish colour more conspicuous all over the body. In the antennae the apex of the 3rd, the 4th, and 5 to 9 joints all of a uniform greyish brown colour. Testes visible as reddish bodies.

Body elongated and slender; limbs long, abdomen long and narrow. The 5th joint of antenna much longer than all the other apical segments together. The 9th abdominal segment not so large as in *fulvicollis* and without very strongly developed spines or hooks. *Measurements*:—Head, length .176 mm., breadth .155 mm.; Prothorax, length .155 mm., breadth .200 mm.; Antennal joints: I 45u, II 55u, III 225u, IV 220u, V 160u, VI 25u, VII 25u, VIII 15u, IX 15u.

Described from a dozen females and a few males collected on 'Cumbu' ears (*Pennisetum typhoidum*) and grass sweepings at Koilpatti, Tinnevely Dt. (T. V. R. Coll.)

This is the second species of '*Eolothrips*' noted from India, the first being *A. fulvicollis*, Bagnall noted from N. India. This new form differs from *fulvicollis* in many distinctive features, such as the colour of the antennal joints and wings, the relative lengths of the antennal joints and the structure of the posterior abdominal segments in the male.

Mymarothrips garuda, n. sp.

Macropterous female.—Length 1.615 mm. This very interesting insect resembles in many respects the African species *M. ritchianus* described by Bagnall in 1926. This new form however differs from it in the following characters:—General colour is yellowish brown with reddish pigment especially over the abdominal segments 3 to 6 and the apical segment; a bright yellow median longitudinal patch extends from the ocellar region to the base of abdomen and it is broader at the pterothorax; cheeks brown, pronotum brown tinged with reddish along the sides and the median region yellow. Head longer than broad, not transverse. Prothorax broader than long. The fore-wing with a distinct transverse colourless clear patch just before the apex which is grey; it also shows a faint second cross-vein connecting the upper and lower veins just at the beginning of the transverse patch, and situated in front of the one connecting the upper vein and the costa.

M. ritchiana is also shorter in length being only 1.35 mm.; the comparative lengths of the antennal joints also differ.

Described from two specimens, one collected on grape vine leaf at Coimbatore with *Rhipiphorotherips cruentatus*, H. (V. M. Coll.) and the other on turmeric leaves at Bhavani with *Panchatothrips indicus*, Bag. (P. N. Nair Coll.)

Chirothrips manicatus, Haliday. (Proc. U. S. A. Nat. Mus.

xxvi, 1902, p. 134.)

Habitat: On grass sweepings, Tobacco, and a few other plants at Coimbatore.

Though this insect has a very wide distribution all over Europe and America, this is the first record of a 'Chirothrips' from Tropical Asia.

Hydatothrips ramsawamiahi, Karny.

(Ent. Mem. Dep. Agr. Ind. ix, 1926, p. 188.)

Habitat: Besides the host plants noted before, the insect has been recently found on *Pongamia* leaves in Sholinger (V. M. Coll.) and on *Cumbu* leaves in Koilpatti (T. V. R. Coll.) This species appears to have a wide distribution in S. India.

Scirtothrips dorsalis, Hood.

(Ins. Insc. Mens. vii, 1919, p. 90.)

This insect recorded by the senior author previously as a pest of the 'Chillies' crop in some parts of S. India, has been found to breed on a variety of plants recently in Cochin, Travancore, and the southern districts of the province.

Examination of numerous forms from different localities has shown that there are some variations in the colouring of the abdomen so much that some are likely to be taken for different species; the writers, however, think that these different forms in colour may at the most be considered as local varieties.

Dendrothrips dwivarna, n. sp.

Macropterous female.—Length 1.100 mm. General colour reddish brown and yellow; head greyish brown, mouth parts lighter grey; thorax light greyish brown profusely covered with bright red pigment all over except along margins of pterothorax which are edged with dark brown. Eyes black; ocelli with reddish pigment. Antennal joints 1, 2 & 3 concolourous with head, the other joints whitish yellow. Front four legs greyish brown except tarsi and apex of tibiae which are pale whitish; the third pair of legs pale yellowish white with the apex of the tibiae and its spur darkish. Fore-wings uniform greyish brown though somewhat paler at base; hind-wings paler with a very narrow median longitudinal streak distinctly dark grey. Abdomen of a uniform pale yellowish colour, the 9th and 10th segments having a slight dark tinge at the sides.

Head small, broader than long; vertex produced in front in the form of a broadly-pointed, short triangle, with the antennae rising at the sides of the triangle; cheeks strongly arched and almost completely occupied by the big eyes. The front margin of vertex has six conspicuous dark spines arranged as below—One in front of the anterior inner angle of each eye, one in front of it and one at each side of the base of the triangular projection. Ocelli distinct, posterior ones larger than the front one. The occiput has a distinct transverse collar-like ridge situated just behind the line across the posterior ocelli; a short bristle on each cheek behind the eye. Antennae 1st joint short and cup-shaped, 2nd stout and longer than the 1st and ovoid in shape with a few short bristles, 3rd shorter than 2nd but of the same shape almost, 4th & 5th of same length, elongate oval, broader at base and gradually narrowing towards apex, 6th longest of all, broadest at base and narrowing towards apex with an irregular transverse groove a little beyond centre making the joint appear divided into two and thus making the antennae appear 9-jointed; 7th and 8th together rather shorter than 6th, elongate and narrow with a few hair-like setae, 7th of same breadth throughout. Mouth cone short, broadly pointed and reaching base of front legs; maxillary palp 2-jointed?

Prothorax slightly broader than head and much broader than long, sides convex with one transparent bristle on each side situated some distance in front of the post-lateral angle. Pterothorax of almost same breadth throughout and much broader than the prothorax. Mouth-cone short and bluntly pointed and extending to middle of prosternum. Wings extend to base of 9th abdominal segment; fore-wings broadened at base and of almost same breadth beyond, the costal and the hind margins being almost parallel; wing surface fringed with numerous very minute setae; at the extreme apex of the wing is a dark conspicuous slightly curved spine; upper vein not clear, but along the track there are four short setae situated at long intervals; one near the curve of the costal margin near base, the second at the centre, the third beyond and the fourth a little before the apex; lower vein absent and no setae present; along the costal margin there are 20 to 22 spines of which 7 or 8 at the basal region

are longer, the conspicuous dark spine at the extreme tip being the longest of all; wing scale with 2 or 3 conspicuous bristles at apex. Hind-wing narrow with the median longitudinal streak prominent.

Abdomen longer than head and throax together, elongate oval in shape and bluntly pointed at apex, 9th segment larger than 10th and bears a group of three or four short darkish spines towards each post-lateral angle, these two groups lying on either side of the prominent ovipositor as in a transverse line; 10th segment more or less tubular and has short weak bristles at apex.

Measurements: Head; length 110 μ , breadth 154 μ , Prothorax; length 110 μ , breadth 165 μ ; Pterothorax; breadth 220 μ . Antenna length. 198 mm. Joints in u ;—I 15, II 35, III 15, IV 30, V 30, VI 45, VII 20, VIII 15.

Described from five females collected on 'Jak' shoots in Kaladi, Travancore State (T. V. R. Coll) and on the same plant at Trichur, Cochin State (C. S. V. Coll.)

The insect is a distinct species and has a characteristic red and yellow colouration. In general appearance and form it resembles species of 'Dendrothrips' and it is provisionally described as a species of that genus. In the apparently 9-jointed antenna, in the structure of the wings and in the triangular projection of the vertex, it approaches 'Corynothrips' of Williams, but the bristles in this form have not the peculiar spinulose structure very characteristic of Corynothrips.

Heliothrips kadaliphila, n. sp.

Macropterous male.—Length 1.14 mm. General colour dark to yellowish or reddish brown; head, portions of thorax, the apical two abdominal segments, all the femora and tibiae, 1st, 2nd and the 6th joints of the antennae dark yellowish brown. All tarsi, bases of mid and hind femora, distal thirds of mid and hind tibiae, antennal joints 3, 4, 5, 7 and 8 pale whitish; joints 1 and 2 often whitish. Eyes black, ocelli with pinkish pigment. Wings uniform yellowish grey; fore-wing with a transparent colourless area a little beyond the basal dark region. Basal three-fourths of abdomen dark brown.

Head broader than long; front margin of vertex distinctly produced forwards into a short triangle between the bases of the antennae. Eyes large, posterior ocelli bigger and placed close to each other distinctly away from the inner margin of the eyes; one slender seta at the cheek behind the eye. One small seta in front of each posterior ocellus and a few small ones in a transverse row in front of a distinct transverse collar-like ridge across the occiput. The surface of the head is closely and clearly reticulated; the cheek is arched behind the eye and more or less corrugated, the posterior lateral region is laterally drawn out and appears as a lateral projection. Antenna: Joints 1 and 2 short stout, and cup-shaped, 3rd joint longest, narrow at both ends and wide in the middle, 4th similar to 3rd and both with forked sense-cones, 5th widening towards anterior end, 6th oval almost and broadly united to the 7th, 7th and 8th long and narrow with slender bristles at apex; the antenna is twice as long as the head. Mouth-cone somewhat long and bluntly pointed, reaching base of mesosternum.

Prothorax shorter than head but broader; surface shows distinct polygonal areas, sides not armed. Pterothorax broad and oval, sides convex, broader than head or thorax. The femora and tibiae also show some reticulated surface. Wings extend to the 9th abdominal segment; costa has 20 spines, the upper vein has 2 or 3 setae at the base and with none beyond; the lower vein shows 6 or 7 short faint ones.

Abdomen long and blunt apically; there are two pairs of short tubercular spines situated on each side of the median line, the anterior pair stouter and longer than the hind pair. The surface of the abdomen also shows the fine reticulated structure arranged in beautiful patterns in some places.

Measurements: Head length .114 mm., breadth .181 mm.; Prothorax length .095 mm., breadth .219 mm.; Pterothorax, breadth .285 mm.; Antenna, length .233 mm. joints in u : I, II, III, 76 μ , IV 57, V 41, VI 24, VII 14, VIII 9.5.

Macropterous female.—length 1.432 mm. Similar in colour to the male but of a deeper brown. Ovipositor long; apical margin of 9th segment with a transverse row of six long setae extending in length to the apex of the tenth segment. In all other features like the male.

Described from a dozen males and females collected on 'Kadali' (Banana) in Coimbatore.

This insect is a typical 'Heliothrips' showing the network structure of the body surface and is quite distinct in that respect from *H. indicus*, Bag. ; it also appears to be different from other species known to the writers, and from *indicus* itself in colouration and other features.

Reticulothrips peringueyi, Faure.

(S. African Jour. Nat. Hist. v, 1925, p. 145.)

This very interesting species which was first described by Prof. Faure of the Transvaal University as the type of a new heliothripine genus was collected in Coimbatore by both the writers on *Panicum* and grass sweepings. This is evidently the first record of the species for India.

Rhipiphorothrips cruentatus, Hood.

(Ins. Insc. Mens vii, 1919, p. 94.)

Recently noted as a bad pest of grape vines in the Madura Dt. and Travancore.

Selenothrips rubrocinctus, Giard.

(Franklin-Pro. U.S. Nat. Mus. xxxvii, 1908, p. 719.)

Habitat: Noted in small numbers on Cashew-nut leaves (*Anacardium*) in Trichur (T. V. R. Coll.) and in the Malabar (Y. R. R. Coll.).

This insect is the notorious 'Cacao thrips' of the West Indies, and this is the first record of the species from India, though a similar insect has been recorded from Ceylon by Green—vide *Trop. Agric.* xxvii, 1906, p. 248.

This is another species the activities of which have to be watched by economic entomologists.

Ayyaria chaetophora, Karny.

(Mem. Dept. Agr. Ind. En. ser. ix, 6. p. 193.)

The genus *Ayyaria* was erected by Karny from a unique female specimen found in the material submitted to him by the senior author of this paper a few years ago. Further specimens of this interesting insect were collected recently by the authors from two or three localities in the province. The following notes including a short description of the male might therefore be added to supplement Karny's description of the type:—

Female.—General colour grey to dark brown with plenty of red pigment over the thorax; head and thorax greyish brown, but the abdomen has a deeper colour except the extreme apex which is lighter and has a tinge of red pigment; the connecting membranes between the segments with a yellowish tinge; ovipositor golden yellow. The grey brown colour of the different parts of the body and on the antennal joints is of a deeper hue than in the type. The femora are distinctly dark brown except at base and apex. Karny's type was evidently a very young adult.

Mouth cone short and bluntly pointed, reaching the middle of prosternum. There is a transverse series of short setæ behind each eye, the marginal one projecting across the gena.

Macropterous male.—Length 1.21 mm. Similar in colour to the female, except that the femora and other joints of the legs are of a lighter colour, almost pale whitish; abdomen dark, with the apex lighter.

Body rather narrow and slender compared to the female. The 9th abdominal segment has two pairs of dark stout tubercular spines; these are situated along the median line, one pair behind the other towards the posterior region of the segment; the front pair ones are stout and longer than the posterior two which are very short though distinct; on the 10th segment is a pair of long up curved spines on the median region. In addition there are thinner and longer bristles at the sides of the 9th segment, the bristle on each lateral side being very long.

Habitat: On Castor shoots, Samalkot (T. V. R. Coll.); on garden Croton, Coimbatore (V. M. Coll.); on Grass sweepings, Walayar forests, Malabar (T. V. R.).

Fulmekiola indica n. sp.

Macropterous female.—Length 1.210 mm. General colour uniform pale to lemon yellow; in some specimens the thorax has a deeper tinge and the abdomen

a very light hue; the mouth-cone margins of thorax narrowly, the apex of abdomen including tip of ovipositor tinged with grey. Wings transparent with very light greyish infumation; on the light yellowish ground colour of the head can be made out three light colourless streaks, one along the median line from therefore margin and the other two one from behind each eye, all the three converging behind at the base of the mouth-cone. Eyes black, ocelli with red pigment. Antennal joints 1 and 2 concolourous with head; 3, 4, and 5 pale whitish with a slight tinge of yellow; basal half of 6th yellowish grey, its distal half and the 7th grey; the 5th is slightly grey towards apex; 3rd to 7th margins very narrowly dark. Legs similar in colour to body.

Body rather elongated; head distinctly longer than broad; vertex before the eyes projecting conically at the anterior margin; cheeks very slightly arched; the occiput with light irregularly arranged transverse striæ near base. Eyes large, faceted, oval, one-third the length of head. Just behind the anterior margin of the head and posterior to the bases of the antennæ is a transverse row of long bristles, about 5 or 6 in number, of these the ones on each side of the median line are very conspicuous. Behind a line across the hind margin of the eyes and the posterior ocelli is another irregular transverse row of smaller bristles; the lateral one on each end of this row projects across the gena. Mouth-cone rather long and attenuated reaching anterior margin of mesosternum.

Prothorax shorter than head, broader than long, margins gently arched. Antennal joints: 1st short and stout, broader than long, 2nd longer than 1st and broadly oval, almost globular, with a short conspicuous seta on the surface; joints 3, 4, 5 of almost same length and shape, all are slightly constricted at base, broadly oval beyond that and broadly attached to the next at apex; 6th elongate oval and the longest of all; 7th of almost same breadth throughout, blunt at apex and with a few setæ.

Prothorax shorter than head, but broader than long, margins gently arched; at each antero-lateral angle is a small anteriorly directed spine and at each posterior angle a pair of long but weak bristles; there are also a few smaller ones along the basal line. Pterothorax broader than head or thorax, longer than broad, sides strongly arched at base but almost parallel beyond wings and narrow extending to 8th abdominal segment; along the costa are 22 to 24 setæ, the ones towards the apex being longer; on the upper vein at the basal part there are 6 or 7 setæ at equal intervals; beyond that are 4 situated at long intervals; the lower vein has 12 setæ arranged at regular intervals; the 7th in the upper vein is situated opposite to the 3rd of lower vein, the 8th opposite to the 7th of lower, 9th opposite to the 11th of lower, and the 10th beyond 12th of lower, near apex. Front legs stouter than the other legs.

Abdomen elongate oval, longer than head and thorax together, abruptly narrowing at the 8th segment. On the 9th segment is a transverse row of 4 or 5 very long bristles extending beyond the anal segment in length; on each side of the median line of the 10th segment is situated an equally long bristle; spines at apex of abdomen shorter.

Measurements: Head length, .154 mm. breadth, .121 mm.; Prothorax, length, .110 mm., breadth .154 mm.; Pterothorax, breadth .209 mm.; Abdomen length, .616 mm., Antenna length, .242 mm.; length of joints in *u*; I 20, II 35, III 45, IV 45, V 50, VI 55, VII 20.
mm.

Macropterous male.—Length .880 mm. Somewhat smaller than the female in size but in colour and general structure similar; the testes are seen through the skin as bright red bodies.

Described from a dozen females and one male collected on sugarcane leaves at Samalkot, Godavari Dt. (V. T. Rao Coll.).

The genus '*Fulmekiola*' was erected by Karney in 1925 (Bull. Delh. Prof. Thys. on Tobacco, No. 23) for a form close to 'Thrips' but differing from that genus in the slender and elongated body, the long head and mouth-cone, and the weak prothoracic bristles.

Scolothrips asura, n. sp.

Macropterous female.—Length .902 mm. General colour a mixture of pale yellow and dark brown; head, antennal joints 1 & 2, pterothorax with base of abdomen, and abdominal segments 6 to 8 dark grey with profuse red pigment, prothorax, the other antennal joints, the middle abdominal segments and apex

of abdomen yellowish to pale white; the ovipositor yellow and the legs pale whitish; wings with fuscus infumation upto the middle, with a small hyaline patch on it just beyond the base, the middle region broadly transparent, then again with fuscous cloud almost to the apex which is however transparent.

In most other respects this new form is similar to the well-known *S. sexmaculatus*, Perg. The important features in which this differs from known species are: The peculiar colouration of the body and the wings, the strong spines of the wing and the weak ones at the anal region and the difference in the relative measurements of the antennal joints 2 & 6 compared to that in the other species, the 6th being more than twice the length of the 2nd.

Described from two female specimens collected on 'Banana' leaves, Coimbatore (V. M. Coll.).

Anaphothrips flavicinctus, Karny.

The senior author has collected a brachypterous female of what is undoubtedly Karny's *A. flavicinctus*, which is the same as Bagnall's *Euthrips citricinctus*.

Length 1.188 mm. General colour and form as in the macropterous form; the following striking features may be noted.—Antennal joints pale whitish with a tinge of light yellow, apex of 4th light grey, 5th to 8th dark grey with the base of 5th lighter. Legs uniform whitish yellow. Wings very much reduced, shorter than head in length and transparent, with a few very short setæ at the margin.

The fringe on the posterior margin of 8th segment and the bristles on apical segments well developed.

One female collected on 'Cumbu' ears in Koilpatti, Tinnevely District (T. V. R. Coll.)

Oxythrips hemavarna,¹ n. sp.

Macropterous female.—Length 1.102 mm. General colour uniform golden yellow; mouth-cone and tip of abdomen slightly darkish, ocelli with orange pigment; antennal joints yellow with the 4th and 5th lightly shaded with brown, the 6th of a deeper brown and the 7th and 8th of a lighter hue.

Head slightly broader than long, vertex and cheeks arched; eyes roundish, ocelli placed close to one another, the posterior ones being very close to the inner margin of eye. Mouth-cone bluntly pointed extending slightly beyond middle of prosternum.

Prothorax distinctly longer and broader than the head and as long as broad, sides arched gradually broadening towards the posterior margin; postero-lateral angle on each side with a pair of short faint transparent bristles. Pterothorax broader than prothorax, mesothorax broader than metathorax. Fore femora thick; hind tibiae slender and longer than the middle ones. Wings: basal portion of upper vein with 5 or 6 short setæ, and the distal half with 3 or 4 placed at long intervals; these are more conspicuous than the others. The lower vein has only 3 or 4 at long intervals; fringes long and greyish. There is a clear narrow streak along the lower vein. Costa of upper vein with 20 to 21 spines.

Abdomen elongate, gradually broadening from the 1st to the 6th segment and then narrowing and ending almost in a point; 9th and 10th segments form a cone; 10th segment slightly longer than the 9th.

Measurements: Head, length .105 mm., breadth .114 mm.; Prothorax, length .152 mm., and same breadth; Pterothorax breadth .209 mm.; Antenna, length .228 mm.; joints in μ : I 24, II 24, III 33, IV 38, V 27, VI 38, VII 10, VIII 10.

Described from two females on Mango leaves: Coimbatore. (V. M. Coll.)

This insect was submitted to Dr. Priesner for confirmation of the identification.

Trypactothrips rutherfordi, Bagnall.

(A. M. N. H. 8, xv, 1915, p. 319.)

This insect has been found very common in and around Coimbatore. The following notes are added to supplement Bagnall's description of the type.

The antennæ are short and stout; joints 1 to 5 yellow, the 2nd a little deeper,

¹ Gold-colored.

6th to 8th grey; joint 1 slightly longer than broad and cylindrical, 2nd almost globular, broadest of the joints; 3rd narrow at base, widest at middle and again narrowing towards apex and longest of all; 4th narrow at base but gradually widening towards apex and slightly symmetrical; 5th to 8th closely connected together, 5th slightly constricted at base and broadly and closely connected with 6th. the connections between the style and the 6th not well defined.

The chaetotaxy of the wings shows a difference between that of Bagnall's type and the specimens collected by the authors in South India. The arrangement in the forewing is this: - Costa 10 or 11 short and stout ones; besides these the apex of the costa at the tip of the wing has two conspicuous curved spines being the longest in the body; upper vein 3 near base of which one is light coloured and the other two black, 3 lighter ones at the middle region, 3 black ones again, and 1 lighter one towards apex; thus there are 10 in the upper. The lower vein has 9 in all arranged more or less as in the upper vein and of similar colour and size; it has only 2 near the base instead of 3 as in the upper. In the type costa has 8 or 9, upper vein 7, and the lower 8. It remains to be seen whether these differences are only varietal or specific.

***Panchaetothrips indicus*, Bagnall.**

(Rec. Ind. Mus. vii, 1912, p. 257.)

This insect, which has been noted only on Arrowroot and Turmeric till now, was recently collected on *Haemelia patens* in Coimbatore. (V. M. Coll.).

***Euryaplothrips*, n. gen.**

This new genus is erected to include an interesting haplothripine form near Bagnall's *Priesneria* and *Trybomiella*.

The insect is quite different from either *Priesneria* or *Trybomiella* in having the head very short and distinctly broader than long, and in this respect it very closely approaches the genera *Brachythrips* and *Austrothrips*. The forewings have no duplicate hairs as in *Trybomiella* but have the general

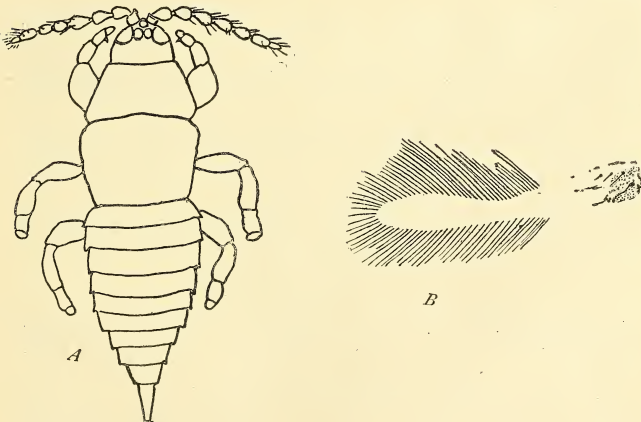


FIG. 1. *Euryaplothrips crassus*, n. gen. & sp.—A. Outline of insect. B. fore-wing.

structure of a haplothripine wing. On the whole the most striking feature is the thick, short, broadheaded form; at the suggestion of Dr. Priesner, the type is named *E. crassus*.

Euryaplothrips crassus n. sp.

Macropterous female.—Length 1·30 to 1·60 mm. General colour uniform light to dark brown; the front tibiae and all the tarsi pale yellowish to yellowish white; antennal joints 1 and base of 2 concolourous with head, 3 to 6 pale greyish, 7 and 8 of a deeper grey. Portions of pterothorax and apex of tube of a lighter tinge. In some specimens the thorax is found suffused with reddish pigment. Wings transparent, fringes brownish; the extreme base of fore-wing tinged with grey brown.

The general form of the body short and stout built. Head distinctly broader than long, shorter than prothorax; the front margin slightly arched, the cheeks almost parallel behind the eyes, no conspicuous bristles on the head or cheeks, only a few very small setae on the occiput and near the eyes; the occiput with faint transverse striæ near the base. Mouth-cone as long as head, bluntly pointed and reaching a little beyond middle of prosternum. Eyes large, ocelli also large, the posterior ones being bigger than the front one; the eyes and ocelli are far in front almost near the front margin. Antennæ considerably longer than head; 1st joint short and cup-shaped, slightly longer than broad, 2nd more or less funnel shaped being constricted at base and widening towards apex; at the apex on each side of the junction with the 3rd joint is slightly crenulated; 3rd to 5th more or less of the same length and shape, narrow at base and broadening towards the next joint; the apical region of joints 3, 4 and 5 of a transparent colour probably sensory (?) 6th almost of the same breadth throughout; 3rd to 5th well supplied with sense-cones. Prothorax posterior margin much broader than the anterior margin, longer than the head; there is a conspicuous transparent bristle at each margin just behind the antero-lateral angle; there is in addition a bristle at the middle of each margin; the postero-lateral angles rounded and with a pair of clubbed bristles of which only one is conspicuous. Pterothorax stout and broad. Front legs stout with the femora more or less incrassated and the tarsus with a small conical tooth. Wings fairly long and extend to the 9th abdominal segment; haplothripine in structure, constricted at the middle and widening at apex; fore-wings have no duplicate hairs, and the basal bristles are medium sized and clubbed.

Abdomen longer than head and thorax together, broader than pterothorax at base, two pairs of wing retaining bristles on each segment clear, the second pair being stouter and longer.

Measurements: Head, length 1·320 mm., breadth ·176 mm., Prothorax, length ·176 mm., breadth ·390 mm.; Pterothorax, breadth ·396 mm.; Tube, length ·110 mm., Antenna, length ·330 mm., joints in u—I 40, II 50, III 55, IV 60, V 55, VI 45, VII 43, VIII 30.

The male is similar to the female in general form and structure; the bristles at the posterior lateral margins of the 9th abdominal segment are more conspicuous.

Described from about a dozen specimens collected on *Amaranthus* flower heads in Coimbatore (T. V. R. Coll.)

Examination of more material of these haplothripine forms in India and a detailed study of the peculiarities of these genera would help us in judging correctly the real affinities of the genera like 'Haplothrips, Zygotherips', Priesneria, Trybomiella and other allied forms.

Haplothrips (Trybomiella) ramakrishnai, Ky.

(Mem. Dep. Agr. Ind. Ent. Ser. ix, vi, p. 218).

According to Bagnall this species falls under the sub-genus 'Trybomiella' being characterized by the absence of duplicate cilia at the apex of the fore-wing.

Haplothrips (Trybomiella) tirumalaoui, n. sp.

Macropterous male.—Length 1·760 mm. General colour uniform brown; this is deeper on the head, thorax, legs and the last three abdominal segments; abdominal segments 2 to 8 of a pale greyish brown colour. Antennal joints 1 and 2 same colour as head, 3 to 5 light yellowish brown, 6 to 8 dark greyish brown. Tarsi of all legs lighter. Wings clear, fringes greyish. Ocelli with slight reddish pigment; tip of mouthcone dark.

Head elongate, longer than prothorax and broadest behind eyes; cheeks almost parallel though imperceptibly narrowing towards base where the